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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/748,248	12/31/2003	Saori Miyahara	247180US90	6992

22850 7590 05/04/2006

OBLON, SPIVAK, MCCLELLAND, MAIER & NEUSTADT, P.C.
1940 DUKE STREET
ALEXANDRIA, VA 22314

EXAMINER

BROOME, SAID A

ART UNIT	PAPER NUMBER
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2628

DATE MAILED: 05/04/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 10/748,248	Applicant(s) MIYAHARA ET AL.	
	Examiner Said Broome	Art Unit 2628	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 27 February 2006.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1 and 3-13 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1 and 3-13 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>3/8/04</u> | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Response to Amendment

1. This office action is in response to an amendment filed 2/27/2006.
2. Claims 1 and 3 have been amended by the applicant.
3. Claim 2 has been cancelled by the applicant.
4. Claims 4-7 are original.
5. Claims 8-13 have been added by the applicant.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1, 6, 8 and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Cosatto et al.(US Patent 6,654,018) in view of Kage(US Patent 6,885,761).

Regarding claim 1, Cosatto et al.(US Patent 6,654,018), which will further be referred to as Cosatto (a), Cosatto (a) describes all the limitations except acquiring the image of the face of a subject and the transmission of the generated animated image to a communication terminal or device. Cosatto (a) teaches generating image information relating to a subject including the positions of characteristic points of the face in column 3 lines 65-67 and in column 4 lines 1-5. Cosatto (a) also teaches generating a second image, or animated image, of a face or character

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based on the image information in column 2 lines 3-10 and 25-29. Cosatto (a) also teaches acquiring the utterance or speech from a subject in column 5 lines 21-25. Cosatto (a) also teaches judging whether the image information satisfies a prescribed condition in column 6 lines 6-13, where it is described that the animated image is generated based on checking the predecessor of each image within a frame of the captured video frame to ensure clear and precise animation of facial features and phoneme sequences, as described in column 5 lines 65-67 and column 6 lines 1-4. Again, Cosatto (a) fails to teach acquiring the image of the face of a subject and transmission of the generated image to a communication terminal or device. Kage teaches acquiring the image of the face of a subject in column 4 lines 27-31, and it is also illustrated in Figure 1 as element 1. Kage also teaches transmitting the generated animated image to a communication terminal in column 12 lines 43-51, which is illustrated in Figures 16A-D. It would have been obvious to one of ordinary skill in the art to combine the teachings of Cosatto et al. with Kage because this combination would provide the generation of an image of a face with certain animated facial features which would be transmitted to a communication device, such as a portable device, for fast and efficient accessibility and accurate display of emotion and facial movement.

Regarding claim 6, Cosatto (a) fails to teach information regarding the displacement in the position of characteristic facial points along a time interval. Kage teaches acquiring images of a face along a time series in column 10 lines 35-39. Kage also teaches indicating displacement among the feature points of the images along time interval in column 10 lines 23-34 where it is described that the displacement and difference between parameters of certain characteristic points of the face over a time interval are determined to generate the image. It

would have been obvious to one of ordinary skill in the art to combine the teachings of Cosatto (a) with Kage because this combination would provide realistic animation of a face containing changes in certain facial features within a particular time period, through measuring the displacement of those changes and their correlation to the animation sequence.

Regarding claim 8, Cosatto et al.(US Patent 6,654,018), which will further be referred to as Cosatto (a), Cosatto (a) describes all the limitations except acquiring the image of the face of a subject and the transmission of the generated animated image to a communication terminal or device. Cosatto (a) teaches generating image information relating to a subject including the positions of characteristic points of the face in column 3 lines 65-67 and in column 4 lines 1-5. Cosatto (a) also teaches generating a second image, or animated image, of a face or character based on the image information in column 2 lines 3-10 and 25-29. Cosatto (a) also teaches acquiring the utterance or speech from a subject in column 5 lines 21-25. Cosatto (a) also teaches judging whether the image information satisfies a prescribed condition in column 6 lines 6-13, where it is described that the animated image is generated based on checking the predecessor of each image within a frame of the captured video frame to ensure clear and precise animation of facial features and phoneme sequences, as described in column 5 lines 65-67 and column 6 lines 1-4. Again, Cosatto (a) fails to teach acquiring the image of the face of a subject and transmission of the generated image to a communication terminal or device. Kage teaches acquiring the image of the face of a subject in column 4 lines 27-31, and it is also illustrated in Figure 1 as element 1. Kage also teaches transmitting the generated animated image to a communication terminal in column 12 lines 43-51, which is illustrated in Figures 16A-D. It would have been obvious to one of ordinary skill in the art to combine the teachings of Cosatto et

al. with Kage because this combination would provide the generation of an image of a face with certain animated facial features which would be transmitted to a communication device, such as a portable device, for fast and efficient accessibility and accurate display of emotion and facial movement.

Regarding claim 12, Cosatto (a) fails to teach information regarding the displacement in the position of characteristic facial points along a time interval. Kage teaches acquiring images of a face along a time series in column 10 lines 35-39. Kage also teaches indicating displacement among the feature points of the images along time interval in column 10 lines 23-34 where it is described that the displacement and difference between parameters of certain characteristic points of the face over a time interval are determined to generate the image. It would have been obvious to one of ordinary skill in the art to combine the teachings of Cosatto (a) with Kage because this combination would provide realistic animation of a face containing changes in certain facial features within a particular time period, through measuring the displacement of those changes and their correlation to the animation sequence.

Claims 3-5, 7, 9-11 and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Cosatto et al.(US Patent 6,654,018) in view of Kage(US Patent 6,885,761), in further view of Cosatto et al.(US Patent 5,995,119).

Regarding claim 3, Cosatto (a) teaches identifying a phoneme from an utterance in column 5 lines 21-25, where it is described that phoneme is recognized from recorded speech. Cosatto (a) also teaches identifying a phoneme under a certain condition in column 6 lines 1-4,

where it is described that once phoneme are determined they are compared against certain target phoneme sequences as illustrated in Figure 2. Cosatto (a) and Kage fail to teach generating an animated image containing the facial expression of a subject that has a phoneme that satisfies a certain condition and can be deciphered, and if the phoneme does not satisfy a certain condition that information from a previous image is used to generate the animated image. Cosatto et al. (US Patent 5,995,119), which will further be referred to as Cosatto (b), teaches generating the animated image according to the facial expression of the face based on a phoneme, as described in column 8 lines 33-38, and when the phoneme does not satisfy a prescribed condition, such as if it cannot be deciphered or recognized, the animated image is still generated using coarticulation where the preceding image containing a phoneme is considered and used as a guide to improve the animated image and provide a more realistic animation, as described in column 8 lines 35-43. It would have been obvious to one of ordinary skill in the art to combine the teachings of Cosatto (a), Kage and Cosatto (b) because this combination would provide realistic speech of an animated face or character through the acquisition of speech, which ensures the natural appearance of facial characteristic points of a face in combination with speech or verbal communication.

Regarding claim 4, Cosatto (a) and Kage fail to teach generating the animated image based on previous collected animated images and phonemes. Cosatto (b) teaches generating the animated image containing phonemes and moving facial features, which are generated if the image does not satisfy a prescribed condition, such as if the sequence contains blurred or unnatural sequences and the facial features of the face appear unrealistic, and the phoneme does not satisfy a condition in an instance when the phoneme could not be recognized, is described in

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column 8 lines 33-43, where it is discussed that the phoneme and facial features are generated from advanced phonemes and motions of features. It would have been obvious to one of ordinary skill in the art to combine the teachings of Cosatto (a), Kage and Cosatto (b) because this combination would provide an accurate animated image that conveys realistic representations of phonemes and facial features.

Regarding claim 5, Cosatto (a) and Kage fail to teach information regarding the distribution of characteristic points in the face. Cosatto (b) teaches identifying the distribution, or positional relationship, of the characteristic points in column 6 lines 1-6 where it is described that parameters are stored for each facial feature containing data corresponding to the position and placement of each feature. It would have been obvious to one of ordinary skill in the art to combine the teachings of Cosatto (a), Kage and Cosatto (b) because this combination would provide realistic animated images by using the determined positional relationship of the characteristic points for the face.

Regarding claim 7, Cosatto (a) and Kage fail to teach the identification of the movement of characteristic points relative to the face. Cosatto (b) teaches the animated image contains information that identifies the movement of certain facial features and characteristic points relative to the face parts of the subject in column 9 lines 42-55. It would have been obvious to one of ordinary skill in the art to combine the teachings of Cosatto (a), Kage and Cosatto (b) because this combination would provide realistic animated images through the identification of the movement of certain characteristic points related to the facial features of the subject that would be utilized to generate a more natural appearance as the image is animated.

Regarding claim 9, Cosatto (a) teaches identifying a phoneme from an utterance in column 5 lines 21-25, where it is described that phoneme is recognized from recorded speech. Cosatto (a) also teaches identifying a phoneme under a certain condition in column 6 lines 1-4, where it is described that once phoneme are determined they are compared against certain target phoneme sequences as illustrated in Figure 2. Cosatto (a) and Kage fail to teach generating an animated image containing the facial expression of a subject that has a phoneme that satisfies a certain condition and can be deciphered, and if the phoneme does not satisfy a certain condition that information from a previous image is used to generate the animated image. Cosatto et al.(US Patent 5,995,119), which will further be referred to as Cosatto (b), teaches generating the animated image according to the facial expression of the face based on a phoneme, as described in column 8 lines 33-38, and when the phoneme does not satisfy a prescribed condition, such as if it cannot be deciphered or recognized, the animated image is still generated using coarticulation where the preceding image containing a phoneme is considered and used as a guide to improve the animated image and provide a more realistic animation, as described in column 8 lines 35-43. It would have been obvious to one of ordinary skill in the art to combine the teachings of Cosatto (a), Kage and Cosatto (b) because this combination would provide realistic speech of an animated face or character through the acquisition of speech, which ensures the natural appearance of facial characteristic points of a face in combination with speech or verbal communication.

Regarding claim 10, Cosatto (a) and Kage fail to teach generating the animated image based on previous collected animated images and phonemes. Cosatto (b) teaches generating the animated image containing phonemes and moving facial features, which are generated if the

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image does not satisfy a prescribed condition, such as if the sequence contains blurred or unnatural sequences and the facial features of the face appear unrealistic, and the phoneme does not satisfy a condition in an instance when the phoneme could not be recognized, is described in column 8 lines 33-43, where it is discussed that the phoneme and facial features are generated from advanced phonemes and motions of features. It would have been obvious to one of ordinary skill in the art to combine the teachings of Cosatto (a), Kage and Cosatto (b) because this combination would provide an accurate animated image that conveys realistic representations of phonemes and facial features.

Regarding claim 11, Cosatto (a) and Kage fail to teach information regarding the distribution of characteristic points in the face. Cosatto (b) teaches identifying the distribution, or positional relationship, of the characteristic points in column 6 lines 1-6 where it is described that parameters are stored for each facial feature containing data corresponding to the position and placement of each feature. It would have been obvious to one of ordinary skill in the art to combine the teachings of Cosatto (a), Kage and Cosatto (b) because this combination would provide realistic animated images by using the determined positional relationship of the characteristic points for the face.

Regarding claim 13, Cosatto (a) and Kage fail to teach the identification of the movement of characteristic points relative to the face. Cosatto (b) teaches the animated image contains information that identifies the movement of certain facial features and characteristic points relative to the face parts of the subject in column 9 lines 42-55. It would have been obvious to one of ordinary skill in the art to combine the teachings of Cosatto (a), Kage and Cosatto (b) because this combination would provide realistic animated images through the identification of

the movement of certain characteristic points related to the facial features of the subject that would be utilized to generate a more natural appearance as the image is animated.

Response to Arguments

Applicant's arguments filed 2/27/2006 have been fully considered but they are not persuasive.

The applicant argues that the reference Cosatto et al.(US Patent 6,654,018), which is used in view of Kage(US Patent 6,885,761) in the 35 U.S.C. 103(a) rejection of claims 1 and 8 due to amendments to the claims, do not teach generating second image information according to the facial expression of the face of the subject based on utterances. The examiner maintains the rejection because Cosatto et al.(US Patent 6,654,018), which is referred to above as Cosatto (a), teaches generating second or successive image information according to the facial expression based on utterances in column 2 lines 32-33 (“...generate the talking-head animation...””) and in column 6 lines 1-9 (“...uses phonetic and visemic context to select a list of candidates that most closely match the phonetic and visemic context of the target...to ensure that coarticulation effects are taken into account...it is desired to ensure "smoothness" in the final animation.”), where it is described that as the images change based on any change in speech or visemes, the next image is generated in response to the determined change to ensure a smooth transition between the change in facial expressions of the images, therefore second image generation is generated according to facial expressions of the face based on utterances.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a).

Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Said Broome whose telephone number is (571)272-2931. The examiner can normally be reached on 8:30am-5pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ulka Chauhan can be reached on (571)272-7782. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

S. Broome
4/20/06 SB


ULKA CHAUHAN
SUPERVISORY PATENT EXAMINER